

REMARKS/ARGUMENTS

For sake of clarity, claims 1-74 have been cancelled. Claims 75-104 have been added. Support for these claims can be found in the specification and the originally filed claims. No new matter has been added by these claim amendments. Applicants believed that it would be easier on all parties if the claims were canceled and rewritten as new claims so as to not have dependent claims appear before the independent claims on which they depend. Accordingly, claims 75-104 are pending in the present application.

In the office action, the Examiner issued a restriction requirement as the previous amendment contained claims directed to "antisense polynucleotides" as well as claims to "sense" nucleotides. The present claim amendment has canceled all of the claims and as such the restriction requirement is moot. Since all of the present claims are directed to antisense polynucleotides, vectors and plants comprising the antisense polynucleotides and since there is only one SEQ ID, it is believed that the present claims should all be examined together.

Specification/Priority

The specification has been amended to provide the missing date of the second priority application.

Drawings

The Examiner has also requested better drawings for figures 5, 7, 10, 11-12, and 16-20. Applicant submits herewith a set of formal drawings for all of the figures in the present application.

Claim Rejections under 35 U.S.C. §112, second paragraph (indefiniteness)

The Examiner has stated that the term "senescence-induced eIF-5a" has not been defined and that it is an arbitrary term. Applicants respectfully disagree and assert that the term "senescence-induced eIF-5a" has been defined and is not an arbitrary term. Applicants first wish to remind the Examiner that Applicants may be their own lexicographer and use a term of their choosing.

Palmer v. United States, 423 F.2d 316, 319-330 (Ct. Cl. 1970), cert. denied, 400 U.S. 951 (1970); Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedic Inc., 22 USPQ2d 1401, 1408 (D. Minn. 1991), aff'd, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992).

In the Field of the Invention section of the present specification, it clearly states: "More particularly, the present invention relates to a senescence induced plant deoxyhypusine synthase gene and a senescence-induced eIF-5A gene whose expressions are induced by the onset of programmed cell death, including senescence. . ." Page 1, lines 5-9. Thus, in the very beginning of the specification, the inventors have described senescence-induced eIF-5A. Moreover, its very name "senescence-induced" is descriptive as it describes its very nature in that the eIF-5A is induced or upregulated at the onset of

senescence. Further, the specification shows that the inventors isolated mRNA of the senescence-induced eIF-5A gene from senescent tissues, used the isolated senescence-induced eIF-5A mRNA to generate senescence-induced eIF-5A cDNA. See Examples 9 and 10. Thus, it is clear from the specification by explanation, description, and by example, that the present inventors have discovered and defined a new eIF-5A gene, which they have term senescence-induced eIF-5A since it is upregulated or whose expression is induced during the onset of programmed cell death, including senescence. The inventors have also isolated the mRNA for this new form of eIF-5A and have provided the cDNA sequence of such gene. In addition, the present inventors have generated antisense constructs to this gene, to reduce expression of this gene to reduce senescence.

The Examiner has also stated that no sequence is set forth. Applicants respectfully disagree. For example, Figure 13 provides nucleotide and derived amino acid sequence of senescence-induced eIF-5A. See also page 14 of the specification. See also page 22, lines 11-19 and examples 9 and 10.

The Examiner has also stated that it is "unclear how senescence-induced eIF-5a" correlates to SEQ ID NO:11. Applicants respectfully point out that on page 22 of the specification, it clearly states that SEQ ID NO: 11 is the cDNA nucleotide sequence of the tomato senescence-induced eIF-5A.

Accordingly, Applicants respectfully request withdrawal of this ground of rejection.

The Examiner has also objected to the use of "a 5' non coding" and "a 3' end." The term "a" was used since it was the first time that this term was introduced into the claims and to comply with proper antecedent basis guidelines. These claims have been cancelled so this ground of rejection is moot. However, in the new claims that have been submitted "a" has been replaced with the term "the" before the use of either "5' non coding" and "a 3' end."

The Examiner has objected to claims 48 and 49. These claims have been cancelled so this ground of rejection is moot. However, in the new claims that have been submitted, Applicants have incorporated the Examiner's suggestion in numbering the limitations.

Claim Rejections under 35 U.S.C. §112, first paragraph (written description)

The Examiner has rejected claims 13-14, 16-17, 24-27, 37-39, 48-49 and 52-53 under 35 U.S.C. §112, first paragraph (written description). The claims have been cancelled, thus rendering this ground of rejection moot. However, in as much as this ground of rejection applies to the newly added claims, Applicants submit the following comments.

Claim 75 is directed to an antisense polynucleotide, which hybridizes under high stringency conditions with SEQ ID NO:11 or with the complement thereof, wherein the high stringency conditions comprise a 6X SSC hybridization solution, and wherein hybridization is carried out at about 68°C; and wherein said antisense polynucleotide is capable of inhibiting expression of a senescence induced eIF-5A gene comprising SEQ ID NO:11. Applicants submit

that this claim meets the requirement of 35 U.S.C. § 112, first paragraph as it provides both functional and descriptive language. The antisense polynucleotide must hybridize to SEQ ID NO:11 under the conditions set forth in the claim (thus providing descriptive language) and the polynucleotide must be capable of inhibiting expression of a senescence induced eIF-5A gene comprising SEQ ID NO:11 (thus providing functional language). Thus, contrary to the Examiner's rejections, the present claim provides hybridization conditions, a reference SEQ ID NO, and functional language, has thus satisfied the written description requirement.

Similarly claim 76 provides both functional and descriptive language to satisfy the written description requirement. Accordingly, Applicants respectfully request withdrawal of this ground of rejection.

Claim Rejections under 35 U.S.C. §112, first paragraph (enablement)

The Examiner has rejected claims 13-14, 16-17, 24-27, 37-39, 48-49 and 52-53 under 35 U.S.C. §112, first paragraph (enablement). The claims have been cancelled, thus rendering this ground of rejection moot. However, in as much as this ground of rejection applies to the newly added claims, Applicants submit the following comments.

The Examiner has stated that the Applicants have claimed that the antisense molecule hybridizes under unspecified conditions with any RNA molecule encoding a senescence-induced eIF-5A. The present claims have specified the hybridization conditions.

The Examiner has stated that the Applicant has not explicitly defined senescence-induced eIF-5A. As discussed above, Applicants respectfully disagree and have provided evidence that this term has been described and defined. Moreover, the pending claims explicitly state that the senescence-induced eIF-5A gene either comprises SEQ ID NO:11 or is a polynucleotide that hybridizes under high stringent conditions (which is defined in the specification and the claim) to a senescence-induced eIF-5A gene comprising SEQ ID NO:11.

The Examiner has stated that it is unpredictable that antisense polynucleotides hybridizing to SEQ ID NO:11 would provide molecules that would not hybridize to any mRNAs encoding an eIF-5A protein and thus would not inhibit its expression. The present claims require that the antisense polynucleotides do not just hybridize to "any mRNAs encoding an eIF-5A protein" as stated by the Examiner, but require that the antisense polynucleotides hybridize to either SEQ ID NO:11 or a polynucleotide that would hybridize to SEQ ID NO:11 (both under high stringency as defined in the claim). Further, the present claims require that the antisense polynucleotide be capable of hybridizing and inhibit expression of the senescence-induced eIF-5A gene of either SEQ ID NO:11 or a senescence-induced eIF-5A that would hybridize to SEQ ID NO:11 under high stringent conditions.

The Examiner also takes issue with statements in the specification that inhibiting expression of senescence-induced eIF-5A will inhibit or reduce senescence. Applicants respectfully point out that the claims are directed to an antisense polynucleotides capable of inhibiting expression of a senescence-

induced eIF-5A gene. Although Applicants believe that such inhibition of expression leads to an inhibition or reduced senescence, Applicants respectfully remind the Examiner that it is not proper to read limitations into the claims from the specification. The claims are directed to antisense polynucleotides that are capable of inhibiting expression of senescence-induced eIF-5A so it is irrelevant if the Examiner doesn't believe that such inhibition will also inhibit or reduce senescence.

Accordingly, Applicants respectfully request withdrawal of this ground of rejection.

Claim Rejections under 35 U.S.C. § 102 (b)

The Examiner has rejected claims 13-14, 16-17, 24-27, 37-39, 48-49 and 52-53 under 35 U.S.C. §102 (b) as being anticipated by Grierson (US 5,530,190). The claims have been cancelled, thus rendering this ground of rejection moot. The present claims are directed to antisense polynucleotides that hybridize under high stringency conditions with SEQ ID NO:11 or with the complement thereof (or a senescence-induced eIF-5A that hybridizes under high stringency conditions to SEQ ID NO:11) wherein the high stringency conditions comprise a 6X SSC hybridization solution, and wherein hybridization is carried out at about 68°C; and wherein said antisense polynucleotide is capable of inhibiting expression of a senescence induced eIF-5A gene comprising SEQ ID NO:11. Grierson does not teach nor suggest the antisense polynucleotides of the present claimed

invention. Accordingly, Applicants respectfully request withdrawal of this ground of rejection.

CONCLUSION

Applicants submit that the claims are now in condition for allowance and earnestly request such action.

The Commissioner is authorized to charge any fees relevant to this filing to Deposit Acct No. 11-0600. The Examiner is invited to contact the undersigned at 202/220-4258 to discuss any matter in this application.

Respectfully submitted,
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